Tampa Water Quality and Coral Restoration Background

Key Messages

404 Assumption: On August 20, 2020, EPA Region 4 received a formal request from the State of Florida for authorization to administer the Clean Water Act Section 404 program. As required by law, the EPA is conducting a completeness determination of the package and will inform Florida once this determination has been made. If the package is determined to be complete, the EPA will work with the applicable government agencies to start the review process set forth by the Clean Water Act and its implementing regulations. The review process includes a public comment period and public hearings which EPA will announce in the Federal Register. An assumed program must be consistent with and no less stringent than the requirements of the Clean Water Act and regulations. The EPA Regional Administrator has up to 120 days to review and determine whether the request for authorization meets all federal requirements.

EPA supports FL: EPA supports water quality restoration in Florida via our South Florida Geographic Initiative (SFGI), National Estuary Programs, and participation on the South Florida Ecosystem Restoration Task Force – working with other federal, state, and tribal partners to restore and protect the Everglades. Our continued engagement and increased funding for these programs during this administration demonstrates our commitment to the unique and richly diverse environmental resources here in Florida, which are national treasures and critically important to the Florida economy.

Harmful Algal Blooms (HABs): We understand that recurring HABs in Florida have a direct impact the Florida economy. EPA has a number of efforts underway to better understand the occurrence of HABs in surface waters and presence of cyanobacterial toxins in drinking water. EPA is developing a number of tools, such as the CyanApp, to help equip local and state decision makers with the necessary data and information to respond to local occurrences of HABs.

Hurricane Preparedness: When preparing for a storm, EPA takes the necessary steps to help communities stay prepared and stands ready to respond accordingly. Unlike some natural disasters, the onset of a tropical storm or hurricane is foreseeable and allows for early preparations to lessen its effects. EPA's primary mission during natural disaster emergencies is to protect people and the environment from chemical, oil, radiological, biological and hazardous threats before, during and after a natural disaster. We coordinate extensively with our federal, state, local and tribal partners in potentially impacted areas to reduce risks from hurricanes.

Gainesville-area Methane Release: The location of the release has been identified as just to the northeast of Gainesville, Florida. The EPA has reviewed these reports and has initiated an investigation into this release. Our preliminary findings indicate that the release may have occurred from maintenance operations at a natural gas compressor station located in Brooker (Bradford County), Florida. The EPA is continuing to investigate the cause of this release and whether any Clean Air Act requirements were violated as a result of the release. As a matter of practice, EPA does not comment on ongoing or potential investigations.

Enforcement flexibility during COVID: EPA's enforcement program remains very active during the current public health emergency. Under Administrator Wheeler's leadership, EPA is rising to the challenge before us regarding COVID-19 and is working to meet our mission of protecting human health and the environment. The Temporary Policy communicates to states, the regulated community and the

public how EPA intends to evaluate claims that noncompliance is caused by the current health emergency. The Policy is not self-implementing and places the burden on the regulated entity to prove to EPA that compliance is not reasonably practicable due to COVID-19. The Temporary Policy terminates on August 31, 2020, although EPA retains its authority to evaluation noncompliance, whether COVID-19 related or not, on a case-by-case basis.

The Florida Aquarium

- The Florida Aquarium is committed to caring for threatened species of coral and serving as the leader of critical initiatives that significantly advance coral protection, reproduction, and healthcare techniques to accelerate restoration of the Florida Reef Tract.
- In 2019, the Aquarium made history by inducing the spawning of several species of Atlantic pillar coral in a laboratory setting for the first time in the world. [HYPERLINK "https://miami.cbslocal.com/2019/08/21/scientific-breakthrough-florida-aquarium-could-save-endangered-coral-reef/"]
- In early 2020, the Aquarium was the first to reproduce and film larvae of the Ridged Cactus Coral and induce laboratory spawning of Grooved Brain Coral. These advancements allow them to increase the genetic diversity of coral offspring, improve coral care and husbandry techniques, and increase coral propagation so valuable resiliency research can be conducted.
- Although EPA has not directly provided grant support to the Aquarium, the coral work done by EPA grant recipients indirectly supports the efforts of the Florida Aquarium. An example – the EPA funded and the Florida Fish and Wildlife Conservation Commission (FWC) administered the Coral Reef Evaluation and Monitoring Project (CREMP), which has monitored corals in the Keys at 40 fixed stations since 1995. This status and trend monitoring were very useful and coral managers tracked the migration of stony coral tissue loss disease down the Florida Reef Tract. The CREMP program also identifies those areas unimpacted by coral disease so that these healthy coral species can be "harvested" and transported to aquariums such as the Florida Aquarium for spawning/reproduction initiatives.

What is EPA is doing to support Florida Reef Tract restoration efforts

- Since 2017, EPA has provided $2.3 million for coral research on the Florida Reef Tract. Working with partners from federal, state and local agencies; universities, non-governmental organizations; and the coral community - EPA has provided grants for coral disease coordination and response; long-term coral monitoring (since 1995); and coral disease research.
- EPA South Florida projects are investigating the characteristics of stony coral tissue loss disease; the genetics of corals that exhibit a natural resistance to coral disease; and the water quality and environmental conditions most promising for coral reef restoration. This research will help support the Florida Aquarium and other coral restoration programs in South Florida.
- This year, EPA will once again be providing an additional $1M in grants to support coral health. These grants will be used to develop technique to treat or mitigate coral disease; propagate coral species; research coral with natural disease resilience and support on-the-ground coral restoration projects.

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South Florida Geographic Initiative

- In 1998, the U.S. Coral Reef Task Force (USCRTF) was established by Executive Order to lead U.S. efforts to restore and protect coral reef ecosystems.
- For FY19, Congress provided an additional $1,500,000 to the South Florida Program:
  - $500,000 to monitor coral health in South Florida;
  - $500,000 to enhance water quality and seagrass monitoring in the Caloosahatchee Estuary and Indian River Lagoon, especially with respect to assessing the impact of Lake Okeechobee discharges; and
  - $500,000 to enhance water quality and seagrass monitoring in Florida Bay and Biscayne Bay, especially with respect to assessing the impact of Everglades Restoration projects.
- EPA's FY20 appropriation provides $4,845,000 for the South Florida program and the Agency is directed to follow the guidance in Senate Report which provides the following guidance:
  - The Committee has provided $4,704,000 for the South Florida program, an increase of $1,500,000 above the enacted level and the Agency's fiscal year 2019 operating plan.
  - Within the increase, the Committee provides $1,000,000 to monitor coral health in South Florida;
  - $650,000 to enhance water quality and seagrass monitoring in the Caloosahatchee Estuary and Indian River Lagoon, especially with respect to assessing the impact of Lake Okeechobee discharges and harmful algal blooms; and
  - $650,000 to enhance water quality and seagrass monitoring in Florida Bay and Biscayne Bay, especially with respect to assessing the impact of Everglades Restoration projects and harmful algal blooms.
  - The FY20 Request for Applications (RFA) closed August 7. EPA received 40 proposals totaling $10 million that the review panel is currently evaluating for funding.

National Estuary Programs

- The National Estuary Program (NEP) is an EPA place-based program to protect and restore the water quality and ecological integrity of estuaries of national significance. EPA Region 4 provides leadership to the NEPs in our region by serving on the Board of Directors of six NEPs. In overseeing and managing the national program, EPA provides annual funding, national guidance and technical assistance to the local NEPs. Based on funds provided by EPA and NEP partners over the past three years since 2017:
  - EPA provided $662,500 per NEP starting in FY 2020 ($600K/NEP for FY 18 and 19) for supporting the Region 4 NEP base program and their Comprehensive Conservation and Management Plan (CCMP) implementation. A total of $11.175M ($3.975M for FY 2020) in federal funds through the Clean Water Section (CWA) 320(h) has been provided to the six Region 4 NEPs.
  - For FY 17-19, Region 4 NEPs have protected and restored 161,607 acres of habitat, exceeding the regional target of 25,000 acres per year.
  - For FY 2017 – 2019, the six Region 4 NEPs have leveraged over $413 million in resources for the NEP study areas in the last 3 years.

NEP Nutrients Success Story

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- Three southwest Florida NEPs (Tampa, Sarasota and Coastal and Heartland (Formerly Charlotte Harbor)) developed Estuarine Numeric Criteria that was approved by EPA and Florida DEP, adopting the criteria into federal and state law. In 2016 and 2019, through two Region 4 Wetlands Development grants, these three NEPs collaborated on the most extensive study to better understand the nutrient relationship (cause and effect) in Tidal creeks ever done in the State of Florida. Region 4 also provided monitoring support for this effort in 2018, resulting in the NEP (Sarasota Bay) developing a nutrient management framework and indicator for southwest Florida Tidal Creeks which is a tool to identify those creeks that need more research for management options and to better protect/restore these highly productive systems that are adjacent to wetlands.
- In 1998, Region 4 developed a TMDL for the major bay segments of Tampa Bay for nutrients. Florida DEP approved the 2017 Reasonable Assurance update (data) towards continued total nitrogen load reductions in Tampa Bay, resulting in the state's delisting of bay segments within Tampa Bay proper as non-impaired for nutrients (total nitrogen).. The management actions under the leadership of Tampa Bay Estuary Program (TBEP) and the voluntary actions of the Tampa Bay Nitrogen Management Consortium (TBNMC) members to add additional voluntary waste loads above those limits of each NPDES permit, further reduced nutrients to the Bay. These efforts continue to be one of the most successful models of its kind in the nation.

NEP Environmental Results/Benefits

- NEP CCMP management actions/projects as implemented by the NEP Management Conference partners are working to improve overall water quality in the estuary which allows seagrasses to expand and valuable habitat restoration and protection for juvenile fish and other living resources. In 2018, a publication in the Marine Pollution Bulletin highlighted the recovery of seagrass in the southwest Florida NEPs (Tampa, Sarasota, and Coastal and Heartland).
- TBEP annual Chlorophyll a and water quality target have been met in Tampa Bay. Seagrass target of 38,000 acres restored was reached in 2017 which is the seagrass levels from the 1950s. Tampa Bay has over 43,000 acres of seagrass today.
- Sarasota Bay Estuary Program exceeded its 1950s seagrass target in 2008 (12,648 acres).
- Coastal and Heartland National Estuary Program (CHNEP) seagrass expansion occurred between 2014-2018. CHNEP expanded its seagrass acreage to 71,000 acres, exceeding the 1950s level. CHNEP was awarded $662,500 for FY21. CHNEP revised their CCMP in 2019 to include the name change from Charlotte Harbor to Coastal and Heartland NEP which also included a 716-mile expansion to the study area. EPA is currently in the process of Regional/HQs concurrence for CHNEP's CCMP Supplemental Documents: Finance Strategy, Monitoring Strategy, and Communications/Outreach Strategy. Seagrass restoration continues to be a priority issue for CHNEP particularly in the Caloosahatchee basin.

Harmful Algal Blooms (HABs)

- Certain environmental conditions in water bodies can intensify algae growth, causing algal blooms. Blooms with the potential to harm human health or aquatic ecosystems are referred to

as harmful algal blooms or HABs. In freshwater systems, cyanobacteria (also called blue-green algae) are microorganisms that can produce HABs. Some cyanobacterial HABs, or cyanoHABs, can produce toxins. CyanoHABs and their toxins can harm people, animals, aquatic ecosystems, the economy, drinking water supplies, property values, and recreational activities, including swimming and commercial and recreational fishing.

Florida HABs/Lake Okeechobee

- HABs are a common occurrence in South Florida, especially in Lake Okeechobee and the downstream St. Lucie and Caloosahatchee estuaries. Significant algal bloom and red tide events occurred in 2016 and 2018 that resulted in human health issues, marine mammal and fish kills, and widespread economic losses.
- During 2020, releases to the St. Lucie and Caloosahatchee estuaries have been minimal as a result of holding Lake Okeechobee levels low going into the summer wet season. As of July 10, 2020, Lake Okeechobee shows a 45% bloom potential concentrated in the center of the lake. Various algae samples taken by the SFWMD in canals surrounding Lake Okeechobee contained some microcystin, but none showed cyanobacteria.
- During 2020, saltwater red tide has not been problematic, as it was in 2019.
- The long-term solution for preventing HABs is the reduction of nutrients from agriculture, failing septic tanks, and fertilizer use at homes with programs being implemented under Florida's authorities.

What is EPA doing about HABs?

- Drinking water
    - Algal toxins are not currently regulated under the Safe Drinking Water Act (SDWA). As the SDWA was amended in 2015 with the passage of the Drinking Water Protection Act, EPA was required to develop and report to Congress a strategic plan outlining the risks to human health from drinking water provided by public water systems contaminated with algal toxins and to recommend feasible treatment options, including procedures and source water protection practices, to mitigate any adverse public health effects of algal toxins.
        - In 2015, USEPA developed, and submitted to Congress, the Algal Toxin Risk Assessment and Management Strategic Plan outlining how the Agency will continue to assess and manage algal toxins in drinking water.
        - USEPA has included cyanobacteria and multiple cyanotoxins in the published list of unregulated contaminants to be monitored by public water systems as required by the SDWA. Ten (10) cyanotoxins were included in the fourth Unregulated Contaminant Monitoring Rule (UCMR 4), proposed on December 11, 2015 to be monitored between 2018 and 2020 using USEPA approved analytical methods. This monitoring provides a basis for future regulatory determinations and, as warranted, actions to protect public health. In 2015, USEPA developed Health Advisories (HA) for two cyanobacterial toxins, and supporting guidance for states and utilities.

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- Surface Water
    - In **June 2019**, EPA published "Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin". These are the recommended concentrations of the cyanotoxins microcystins and cylindrospermopsin in recreational waters protective of human health while swimming or participating in primary contact recreational activities on the water.

    - In December 2019, EPA released a draft technical support document, entitled "**Draft Technical Support Document: Implementing the 2019 Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin",** in the form of a questions and answers document, to support the implementation of EPA's recently published recommended CWA section 304(a) Recreational Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin. The draft technical support document addresses the adoption, assessment and listing for the new recreational criteria. The public comment period on the draft document closed on February 14, 2020. EPA is the process of revising the document to address comments the Agency received.

    - USEPA supports a **national research program** that studies the pathways and effects of nutrients on ecosystems and focuses in finding innovative and optimal solutions to reduce nutrient pollution.

    - USEPA is conducting a **national study on nutrient removal** – i.e., how to control nutrients, develop and implement water treatment technologies -- at municipal wastewater plants.

    - USEPA also helped manage the **Nutrient Sensor Challenge** which allowed teams from all over the world to participate in developing affordable dissolved nitrate and/or phosphate sensors.

    - USEPA is leading a **multi-agency project** among the National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and U.S. Geological Survey (USGS), to develop an early warning indicator system using historical and current satellite data to detect algal blooms in U.S. freshwater systems.

        - The **Cyanobacteria Assessment Network (CyAN)** project supports federal, state, and local partners in their monitoring efforts to assess water quality to protect aquatic and human health.

        - EPA's Cyanobacteria Assessment Network mobile application (**CyAN app**) is an easy-to-use and customizable app that provides access to algal bloom satellite data for over 2,000 of the largest lakes and reservoirs across the United States. EPA scientists developed the CyAN app to help local and state water quality managers make faster and better-informed management decisions related to cyanobacterial blooms.

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